

CLAIMS

1. An acceleration sensor comprising:
a vibrator that is polarized in one direction;
5 a weight that is connected to the vibrator; and
a pair of electrodes that are adjacent to each
other in the direction of the polarization and are
formed on a first face of the vibrator, the pair of
electrode being located on a diagonal line on the first
10 face.

2. The acceleration sensor as claimed in claim
1, wherein the pair of electrodes each has an area that
is larger than a fourth of the area of the first face,
15 but smaller than a half of the area of the first face.

3. The acceleration sensor as claimed in claim
1, wherein the relationship between the length of the
vibrator and the lengths of the pair of electrodes is
20 expressed as follows:

$$0.5 < L1(=L2)/L < 1$$

where L represents the length of the vibrator in
a direction perpendicular to the polarization direction,
and L1 and L2 represent the lengths of the pair of
25 electrodes.

4. The acceleration sensor as claimed in claim
1, wherein the first face of the vibrator has a
plurality of exposed regions that are not covered with
30 the pair of electrodes, the plurality of exposed
regions being located on the other diagonal line on the
first face.

5. The acceleration sensor as claimed in claim
35 1, further comprising another pair of electrodes that
are located on the other diagonal line on the first
face.

6. The acceleration sensor as claimed in claim 5, wherein the another pair of electrodes each has an area that is smaller than the area of each half of the 5 first face of the vibrator divided in the polarization direction.

7. The acceleration sensor as claimed in claim 10 6, wherein each electrode of the pair of electrodes is electrically connected to each corresponding electrode of the another pair of electrodes that are adjacent to each other in a direction perpendicular to the polarization direction.

15 8. The acceleration sensor as claimed in claim 1, wherein the polarization direction of the vibrator is perpendicular to the longitudinal direction of the weight that takes on a plate-like shape.

20 9. The acceleration sensor as claimed in claim 1, wherein the polarization direction of the vibrator is the same as the longitudinal direction of the weight that takes on a plate-like shape.

25 10. The acceleration sensor as claimed in claim 1, further comprising a differential amplifier that is connected to the pair of electrodes and differential-amplifies voltage produced in the pair of electrodes.

30 11. An acceleration sensor comprising:
a vibrator that is polarized in one direction;
a weight that is connected to the vibrator; and
two electrodes that are arranged in such a manner
as to divide a first face of the vibrator into two
35 asymmetric parts, the two electrodes having facing
edges tilted with respect to the polarization direction
of the vibrator.

12. The acceleration sensor as claimed in claim
11, wherein one of the two electrodes lies across all
parts of the first face that is divided into four equal
5 parts.

13. The acceleration sensor as claimed in claim
11, wherein the two electrodes have different areas
from each other.

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14. The acceleration sensor as claimed in claim
1, further comprising a metal film that is patterned on
a second face of the vibrator in such a manner that the
vibrator is partially exposed, the second face being
15 situated on the opposite side to the first face of the
vibrator,

wherein the second face is fixed to the weight
with an adhesive.

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15. The acceleration sensor as claimed in claim
1, further comprising a multi-layer metal film that is
formed on a second face on the opposite side to the
first face of the vibrator, the multi-layer metal film
having a surface layer patterned in such a manner that
25 an inner metal film is partially exposed,

wherein the second face is fixed to the weight
with an adhesive.

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16. The acceleration sensor as claimed in claim
1, wherein the electrodes have corner parts set back
from the corresponding corners of the vibrator.

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17. The acceleration sensor as claimed in claim
1, wherein the edges of the electrodes are set back
from the edges of the vibrator.

18. The acceleration sensor as claimed in claim

1, further comprising a substrate,
wherein the first face of the vibrator is
attached to the substrate with an adhesive.

5 19. The acceleration sensor as claimed in claim
18, wherein

the substrate has a metal film formed at a
location facing the first face of the vibrator; and
the metal film is patterned so as to guide the
10 adhesive when the vibrator is attached to the substrate.

20. The acceleration sensor as claimed in claim
1, further comprising a substrate,

wherein:

15 the weight is supported on the substrate in a
cantilevered state, with the vibrator being interposed
in between; and

20 a damper is formed on the substrate at a location
facing a free end of the weight, the damper restricting
movement of the free end.